LISTING OF CLAIMS:

1. (Original) A flow sensor comprising:

a paddle being disposed at least partially in an orifice, a fluid flow directed through the orifice, the paddle being displaced in response to the fluid flow; and

a support member positioning the paddle at least partially in the orifice, the support member including a plurality of strain gauges, the plurality of strain gauges being disposed on only one side of the support member, at least one of the plurality of strain gauges being mechanically stressed in response to the paddle being displaced by the fluid flow.

2. (Original) A flow sensor as defined by Claim 1, wherein the paddle includes a surface area, the surface area of the paddle being adaptable to provide different displacements of the paddle in response to the fluid flow.

3. (Original) A flow sensor as defined by Claim 1, wherein the paddle includes a first surface area, the support member including a second surface area, the first surface area being unequal to the second surface area.

4. (Original) A flow sensor as defined by Claim 1, wherein the paddle does not have any electrical components mounted thereon.

5. (Original) A flow sensor as defined by Claim 1, wherein the plurality of strain gauges is operatively configured in a Wheatstone bridge.

6. (Original) A flow sensor as defined by Claim 1, wherein at least one of the plurality of strain gauges is responsive to at least one of transverse stress and longitudinal stress.

7. (Original) A flow sensor as defined by Claim 1, wherein at least one of the plurality of strain gauges is piezo-resistive.

8. (Original) A method of sensing flow, the method comprising the steps of:

disposing a paddle at least partially in an orifice;

directing a fluid flow through the orifice, the paddle being displaced in response to the fluid flow;

positioning the paddle at least partially in the orifice by a support member, the support member including a plurality of strain gauges; and

disposing the plurality of strain gauges on only one side of the support member, the plurality of strain gauges being mechanically stressed in response to the paddle being displaced by the fluid flow.

9. (Original) A method of sensing flow as defined by Claim 8, further comprising the step of adapting a surface area of the paddle to provide different displacements of the paddle in response to the fluid flow.

10. (Original) A method of sensing flow as defined by Claim 8, further comprising the step of providing a first surface area of the paddle unequal to a second surface area of the support member.

11. (Original) A method of sensing flow as defined by Claim 8, further comprising the step of disposing the plurality of strain gauges exclusively on the support member.

12. (Original) A method of sensing flow as defined by Claim 8, further comprising the step of configuring the plurality of strain gauges operatively in a Wheatstone bridge.

13. (Original) A method of sensing flow as defined by Claim 8, further comprising the step of providing at least one of the plurality of strain gauges as responsive to at least one of transverse stress and longitudinal stress.

14. (Original) A method of sensing flow as defined by Claim 8, further comprising the step of providing at least one of the plurality of strain gauges as a piezo-resistive strain gauge.

15. (Original) A fluid sensing device, the fluid sensing device comprising:

a fluid flow device including a first mating portion and a second mating portion, the first mating portion including a first aperture, the second mating portion including a second aperture, the first aperture and the second aperture being at least partially aligned such that the first aperture and the second aperture define a channel through the first and second mating portions when the first and second mating portions are joined together, the channel being able to communicate fluid therethrough; and

a circuit board sandwiched between the first mating portion and the second mating portion, the circuit board including at least one flow sensor, the at least one flow sensor being at least partially aligned with the channel, the at least one flow sensor being able to detect a physical characteristic of the fluid flowing through the channel, the flow sensor including a paddle and a support member, the paddle being at least partially disposed in the channel, the paddle being displaced in response to fluid flowing through the channel, the support member positioning the paddle at least partially in the channel, the support member including a plurality of strain gauges, the plurality of strain gauges being mechanically stressed in response to the paddle being displaced.

16. (Original) A fluid sensing device as defined by Claim 15, wherein the plurality of strain gauges are disposed on only one side of the support member.

17. (Original) A fluid sensing device as defined by Claim 15, wherein the fluid flow device includes a valve manifold and a base plate, the base plate being removably coupled to the valve manifold, the base plate including the first mating portion and the second mating portion.

18. (Original) A fluid sensing device as defined by Claim 15, wherein the first mating portion includes a plurality of first apertures and the second mating portion includes a plurality of second apertures, the plurality of first apertures and the plurality of second

apertures being at least partially aligned such that the plurality of first apertures and the plurality of second apertures define a plurality of channels through the first and second mating portions when the first and second mating portions are joined together, the plurality of channels being able to communicate fluid therethrough, the circuit board including a plurality of flow sensors, the plurality of flow sensors being at least partially aligned with the plurality of channels, the plurality of flow sensors being able to detect a physical characteristic of the fluid flowing through the plurality of channels.

19. (Original) A fluid sensing device as defined by Claim 15, wherein the paddle includes a surface area, the surface area of the paddle being adaptable to provide different displacements of the paddle in response to the fluid flow.

20. (Original) A fluid sensing device as defined by Claim 15, wherein the paddle includes a first surface area, the support member including a second surface area, the first surface area being unequal to the second surface area.

21. (Original) A fluid sensing device as defined by Claim 15, wherein the paddle does not have any electrical components mounted thereon.

22. (Original) A fluid sensing device as defined by Claim 15, wherein the plurality of strain gauges is operatively configured in a Wheatstone bridge.

23 (Original) A fluid sensing device as defined by Claim 15, wherein at least one of the plurality of strain gauges is responsive to at least one of transverse stress and longitudinal stress.

24 (Original) A fluid sensing device as defined by Claim 15, wherein at least one of the plurality of strain gauges is piezo-resistive.

25. (Original) A fluid sensing device comprising:

at least one valve;

a base plate removably coupled to the at least one valve, the base plate including a first portion and a second portion, the first portion including a first mating surface, the second portion including a second mating surface the base plate including a channel through the first and second portions when the first and second mating surfaces are joined together, the channel being in fluid communication with the at least one value; and

a circuit board sandwiched between the first portion and the second portion, the circuit board including at least one flow sensor, the at least one flow sensor being at least partially aligned with the channel, the at least one flow sensor being able to detect a physical characteristic of the fluid flowing through the channel, the at least one flow sensor including a paddle and a support member, the paddle being at least partially disposed in the channel, a fluid flow being directed through the channel, the paddle being displaced in response to the fluid flow, the support member positioning the paddle at least partially in the channel, the support member including a plurality of strain gauges the plurality of strain gauges being mechanically stressed in response to the paddle being displaced by the fluid flow.

26. (Original) A fluid sensing device as defined by Claim 25, wherein the plurality of strain gauges are disposed on only one side of the support member.

27. (Original) A fluid sensing device as defined by Claim 25, wherein the base plate includes a plurality of channels through the first and second portions when the first and second mating surfaces are joined together, the plurality of channels being able to communicate fluid therethrough, the circuit board including a plurality of flow sensors, the plurality of flow sensors being at least partially aligned with the plurality of channels, the plurality of flow sensors being able to detect a physical characteristic of the fluid flowing through the plurality of channels.

28. (Original) A fluid sensing device as defined by Claim 25, wherein the paddle includes a surface area, the surface area of the paddle being adaptable to provide different displacements of the paddle in response to the fluid flow.

29. (Original) A fluid sensing device as defined by Claim 25, wherein the paddle includes a first surface area, the support member including a second surface area, the first surface area being unequal to the second surface area.

30. (Original) A fluid sensing device as defined by Claim 25, wherein the paddle does not have any electrical components mounted thereon.

31. (Original) A fluid sensing device as defined by Claim 25, wherein the plurality of strain gauges is operatively configured in a Wheatstone bridge.

32. (Original) A fluid sensing device as defined by Claim 25, wherein at least one of the plurality of strain gauges is responsive to at least one of transverse stress and longitudinal stress.

33. (Original) A fluid sensing device comprising:

at least one valve including at least one duct and a substantially flat first mating surface;

a base plate removably coupled to the at least one valve, the base plate having a second mating surface, the base plate including at least one channel in fluid communication with the at least one duct; and

a circuit board sandwiched between the first mating surface of the valve and the second mating surface of the base plate, the circuit board comprising at least one flow sensor, the at least one flow sensor being at least partially aligned with at least one of the duct and the channel, the at least one flow sensor being able to detect a physical characteristic of a fluid flowing therethrough, the at least one flow sensor including a paddle and a support member, the paddle being at least partially aligned with at least one of the duct and the channel, a fluid flow being directed through the channel, the paddle being displaced in response to the fluid flow, the support member positioning the paddle, the support member

including a plurality of strain gauges, the plurality of strain gauges being mechanically stressed in response to the paddle being displaced by the fluid flow.

34. (Original) A fluid sensing device as defined by Claim 33, wherein the plurality of strain gauges is disposed on only one side of the support member.

35. (Original) A fluid sensing device as defined by Claim 33, wherein the at least one valve includes a plurality of ducts, the base plate including a plurality of channels in fluid communication with the plurality of ducts, the circuit board comprising a plurality of flow sensors at least partially aligned with the plurality of ducts and the plurality of channels.

36. (Original) A fluid sensing device as defined by Claim 33, wherein the paddle includes a surface area, the surface area of the paddle being adaptable to provide different displacements of the paddle in response to the fluid flow.

37. (Original) A fluid sensing device as defined by Claim 33, wherein the paddle includes a first surface area, the support member including a second surface area, the first surface area being unequal to the second surface area.

38. (Original) A fluid sensing device as defined by Claim 33, wherein the paddle does not have any electrical components mounted thereon.

39. (Original) A fluid sensing device as defined by Claim 33, wherein the plurality of strain gauges is operatively configured in a Wheatstone bridge.

40. (Original) A fluid sensing device as defined by Claim 33, wherein at least one of the plurality of strain gauges is responsive to at least one of transverse stress and longitudinal stress.

41. (New) A medium sensing device comprising:

a flow device including a first mating portion and a second mating portion, the first mating portion including a first aperture, the second mating portion including a second aperture, the first aperture and the second aperture being at least partially aligned such that the first aperture and the second aperture define a channel through the first and second mating portions when the first and second mating portions are joined together, the channel being able to communicate the medium therethrough; and

a circuit board sandwiched between the first mating portion and the second mating portion, the circuit board including at least one sensor, the at least one sensor being at least partially aligned with the channel, the at least one sensor being able to detect a physical characteristic of the medium flowing through the channel.

42. (New) A medium sensing device as defined by Claim 41, further comprising:

a paddle disposed at least partially in an orifice, a medium flow directed through the orifice, the paddle being displaced in response to the medium flow; and

a support member positioning the paddle at least partially in the orifice, the support member including a plurality of strain gauges, the plurality of strain gauges being disposed on only one side of the support member, at least one of the plurality of strain gauges being mechanically stressed in response to the paddle being displaced by the medium flow.

43. (New) A method of providing a sensor in a medium flow device comprising the steps of:

providing the medium flow device as a first mating portion and a second mating portion, the first mating portion including a first aperture, the second mating portion including a second aperture, the first aperture and the second aperture being at least partially aligned such that the first aperture and the second aperture define a channel through the first and second mating portions when the first and second mating portions are joined together, the channel being able to communicate the medium therethrough; and

sandwiching a circuit board between the first mating portion and the second mating portion, the circuit board including at least one sensor, the at least one sensor being at least partially aligned with the channel, the at least one sensor being able to detect a physical characteristic of the medium flowing through the channel.

44. (New) A method of providing a sensor in a fluid flow device as defined by Claim 43, further comprising the steps of:

disposing a paddle at least partially in an orifice;

directing a medium flow through the orifice, the paddle being displaced in response to the medium flow;

positioning the paddle at least partially in the orifice by a support member, the support member including a plurality of strain gauges; and

disposing the plurality of strain gauges on only one side of the support member, the plurality of strain gauges being mechanically stressed in response to the paddle being displaced by the medium flow.